

Amendment to the Claims

Please cancel claims 21-57, without prejudice to applicants' right to pursue the subject matter of these claims in a continuing application. Upon entry of the amendment, the claims will read as follows:

1. (Original) A method of modifying an electrochemical processing chamber from a first configuration for treating a first workpiece to a second configuration for treating a different second workpiece, the electrochemical processing chamber initially comprising a reaction vessel having a plurality of electrodes positioned in electrically separate electrode compartments and a first virtual electrode unit defining a first set of virtual electrodes having predefined relative positions adapted for treating the first workpiece, each of the virtual electrodes being in fluid communication with one of the electrode compartments, the method comprising:  
providing a second virtual electrode unit defining a second set of virtual electrodes having predetermined relative positions adapted for treating the second workpiece, the relative positions of the virtual electrodes in the first set differing from the relative positions of the virtual electrodes in the second set; and  
replacing the first virtual electrode unit with the second virtual electrode unit, thereby modifying an effective electric field of the electrochemical processing chamber for treatment of the second workpiece without necessitating modification of the electrodes.
2. (Original) The method of claim 1 wherein the electrode compartments are defined by a first plurality of walls which are coupled to the first virtual electrode unit, the first plurality of walls and the first virtual electrode unit together defining a first field shaping unit, replacing the first virtual electrode unit with the second virtual electrode unit comprising removing the first field shaping unit as a unit.

3. (Original) The method of claim 2 wherein the second virtual electrode unit is coupled to a second plurality of walls, the second plurality of walls and the second virtual electrode unit together defining a second field shaping unit, relative positions of the walls in the second field shaping unit being the same as relative positions of the walls in the first field shaping unit, replacing the first virtual electrode unit with the second virtual electrode unit further comprising, after removing the first field shaping unit, placing the second field shaping unit in the reaction vessel as a unit such that the walls of the second field shaping unit are positioned in the same locations formerly occupied by walls of the first field shaping unit.
4. (Original) The method of claim 1 wherein replacing the first virtual electrode unit with the second virtual electrode unit comprises removing the first virtual electrode unit and, thereafter, installing the second virtual electrode unit in its place.
5. (Original) The method of claim 1 further comprising treating the first workpiece with the electrochemical processing chamber prior to replacing the first virtual electrode unit with the second virtual electrode unit.
6. (Original) The method of claim 1 further comprising treating the second workpiece with the electrochemical processing chamber after replacing the first virtual electrode unit with the second virtual electrode unit.
7. (Original) The method of claim 1 wherein the reaction vessel includes a flow distributor having a separate fluid conduit in fluid communication with each of the electrode compartments and a separate annular recess for releasably receiving a lower edge of each wall, replacing the first virtual electrode unit with the second virtual electrode unit comprising removing the walls of the first partition from the annular recesses of the distributor.

8. (Original) The method of claim 7 wherein replacing the first virtual electrode unit with the second virtual electrode unit further comprises inserting a lower edge of each of the walls of the second virtual electrode unit in one of the annular recesses in the flow distributor.
9. (Original) The method of claim 1 wherein the electrochemical processing chamber initially includes a first contact assembly adapted to support the first workpiece in a predetermined position with respect to the first set of virtual electrodes, the method further comprising:  
providing a second contact assembly adapted to support the second workpiece;  
and  
replacing the first contact assembly with the second contact assembly.
10. (Original) The method of claim 9 further comprising supporting the second workpiece with the second contact assembly and applying an electrical potential to the electrodes.
11. (Original) A method of treating a first workpiece and a different second workpiece in an electrochemical processing chamber, comprising:  
providing an electrochemical processing chamber comprising a reaction vessel having a plurality of electrodes positioned in electrically separate electrode compartments and a first virtual electrode unit defining a first set of virtual electrodes having predefined relative positions adapted for treating the first workpiece, each of the virtual electrodes being in fluid communication with one of the electrode compartments;  
providing a second virtual electrode unit defining a second set of virtual electrodes having predetermined relative positions adapted for treating the second workpiece, the relative positions of the virtual electrodes in the first set differing from the relative positions of the virtual electrodes in the second set;  
treating the first workpiece by applying an electrical potential to the electrodes;

thereafter, replacing the first virtual electrode unit with the second virtual electrode unit, thereby modifying an effective electric field of the electrochemical processing chamber for treatment of the second workpiece without necessitating modification of the electrodes; and  
thereafter, treating the second workpiece by applying an electrical potential to the electrodes.

12. (Original) A method of treating a first workpiece and a different second workpiece in an electrochemical processing chamber, comprising:

providing an electrochemical processing chamber comprising a first contact assembly, a reaction vessel, an electrode received in an interior of the reaction vessel, and a first virtual electrode unit defining a first virtual electrode in fluid communication with the electrode;  
providing a second contact assembly and a second virtual electrode unit defining a second virtual electrode;  
supporting the first workpiece with the first contact assembly at a predetermined position with respect to the first virtual electrode;  
treating the first workpiece by applying an electrical potential to the electrode;  
thereafter, replacing the first virtual electrode unit with the second virtual electrode unit, thereby modifying an effective electric field of the electrochemical processing chamber for treatment of the second workpiece without necessitating modification of the electrodes;  
supporting the second workpiece with the second contact assembly at a predetermined position with respect to the second virtual electrode; and  
thereafter, treating the second workpiece by applying an electrical potential to the electrode.

13. (Original) A method of effectuating electrochemical treatment of a first workpiece and a different second workpiece, comprising:  
providing an initial electrochemical processing chamber and a second virtual electrode unit,

the initial electrochemical processing chamber comprising a reaction vessel having a plurality of electrodes positioned in electrically separate electrode compartments and a first virtual electrode unit defining a first set of virtual electrodes having predefined relative positions adapted for treating the first workpiece, each of the virtual electrodes being in fluid communication with one of the electrode compartments;

the second virtual electrode unit being adapted to define a second set of virtual electrodes having predefined relative positions adapted for treating the second workpiece, each of the virtual electrodes of the second virtual electrode unit being adapted for fluid communication with one of the electrode compartments, relative positions of the virtual electrodes of the second field shaping unit being different from relative positions of the virtual electrodes of the first field shaping unit; and

instructing a user to treat the first workpiece with the initial electrochemical processing chamber; to replace the first virtual electrode unit with the second virtual electrode unit, thereby modifying the initial electrochemical processing chamber by repositioning the virtual electrodes without necessity of altering the electrodes of the reaction vessel; and to treat the second workpiece with the modified electrochemical processing chamber.

14. (Original) The method of claim 13 wherein the electrode compartments in the initial electrochemical processing chamber are defined by a first plurality of walls coupled to the first virtual electrode unit and received in predefined spaces between adjacent electrodes, the first plurality of walls and the first virtual electrode unit together defining a first field shaping unit, instructing the user to replace the first field shaping unit with the second field shaping unit comprising instructing the user to remove the first field shaping unit.
15. (Original) The method of claim 14 wherein the second virtual electrode unit is coupled to a second plurality of walls, the second plurality of walls and the second virtual electrode unit together defining a second field shaping unit,

instructing the user to replace the first virtual electrode unit with the second virtual electrode unit further comprising instructing the user to, after removing the first field shaping unit, place the second field shaping unit in the reaction vessel as a unit such that the walls of the second field shaping unit are positioned in the predefined spaces between adjacent electrodes.

16. (Original) The method of claim 13 wherein instructing the user to replace the first virtual electrode unit with the second virtual electrode unit comprises instructing the user to remove the first virtual electrode unit and, thereafter, installing the second virtual electrode unit in its place.
17. (Original) The method of claim 13 wherein the reaction vessel includes a flow distributor having a separate fluid conduit in fluid communication with each of the electrode compartments and a separate annular recess for releasably receiving a lower edge of each wall, instructing the user to replace the first virtual electrode unit with the second virtual electrode unit comprising instructing the user to remove the walls of the first partition from the annular recesses of the distributor.
18. (Original) The method of claim 17 wherein instructing the user to replace the first virtual electrode unit with the second virtual electrode unit further comprises instructing the user to insert a lower edge of each of the walls of the second virtual electrode unit in one of the annular recesses in the flow distributor.
19. (Original) A method of modifying an electrochemical processing chamber from a first configuration for treating a first workpiece to a second configuration for treating a different second workpiece, the electrochemical processing chamber initially comprising a reaction vessel having an interior, an electrode positioned in the interior, and a replaceable first virtual electrode unit above the electrode, the first virtual electrode unit defining a first virtual electrode adapted for treating the first workpiece and in fluid communication with the electrode, the method comprising:

providing a second virtual electrode unit which defines a second virtual electrode adapted for treating the second workpiece;  
without modifying the electrodes, removing the first virtual electrode unit from the reaction vessel; and  
without modifying the electrodes, installing the second virtual electrode unit in the reaction vessel;  
whereby the virtual electrode in the initial electrochemical processing chamber is moved to a different relative position defined by the second virtual electrode unit for treatment of the second workpiece without necessitating modification of the electrode.

20. (Original) A method of modifying an electrochemical processing chamber from a first configuration for treating a first workpiece to a second configuration for treating a different second workpiece, the electrochemical processing chamber initially comprising a reaction vessel and a replaceable first field shaping unit; the first field shaping unit having a plurality of concentric walls and a virtual electrode unit, the walls electrically separating a plurality of concentric electrode compartments and the virtual electrode unit defining a first set of virtual electrodes having predefined relative positions, a separate one of the virtual electrodes being in fluid communication with each of the electrode compartments; the reaction vessel comprising a wall defining an interior, the interior receiving the walls of the first field shaping unit and a plurality of electrodes, at least one of the electrodes being positioned in each of the electrode compartments, adjacent electrodes being spaced from one another to define predefined spaces within which the walls are received; the method comprising:  
providing a second field shaping unit having a plurality of concentric walls and a second virtual electrode unit, the second virtual electrode unit defining a second set of virtual electrodes having predetermined relative positions adapted for treating the second workpiece, the relative positions of the virtual

electrodes in the second set differing from the relative positions of the virtual electrodes in the first set;  
without modifying the electrodes, removing the first field shaping unit from the reaction vessel as a unit; and  
without modifying the electrodes, installing the second field shaping unit in the reaction vessel as a unit, the walls of the second field shaping unit being received in the predefined spaces between the electrodes;  
whereby the virtual electrodes in the initial electrochemical processing chamber are moved to new relative positions defined by the second virtual electrode unit for treatment of the second workpiece without necessitating modification of the electrodes.

21-57. (Canceled)